



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/683,713	02/06/2002	Hilmar Gugel	21295-40	8638

21710 7590 12/17/2002

BROWN, RUDNICK, BERLACK & ISRAELS, LLP.  
BOX 1P, 18TH FLOOR  
ONE FINANCIAL CENTER  
BOSTON, MA 02111

EXAMINER

NGUYEN, THONG Q

ART UNIT	PAPER NUMBER
----------	--------------

2872

DATE MAILED: 12/17/2002

7

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Applicati n N .

09/683,713

Examiner

Thong Q. Nguyen

Applicant(s)

GUGEL ET AL.

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 10 October 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1,3-6 and 8-35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 3-6 and 8-35 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

1. The present Office action is made in response to the amendment (Paper no. 6) of 10/10/2002.

### ***Priority***

2. The objection to the filing of papers filed under 35 U.S.C. 119 (a)-(d) based on an application filed in German on 02/14/2001 made in the previous Office action is now withdrawn because such an information is disclosed in the application data sheet filed by the applicant on 2/6/2002 .

### ***Oath/Declaration***

3. The objection to the oath or declaration as set forth in the previous Office action is now withdrawn because the information and arguments provided by the applicant in the amendment (Paper No. 6, pages 13-14) are sufficient to overcome the objection.

### ***Drawings***

4. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the feature relating to the use of at least two light sources as recited in the newly-added claim 19 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

***Specification***

5. The lengthy specification which is amended by the amendment of 10/16/2002 has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

6. The disclosure is objected to because of the following informalities: In page 10: on line 8, "290" should be changed to --390--. See figure 4. Appropriate correction is required. It is noted that in the amendment filed on 10/16/02, applicant has requested to amend the specification to overcome the objection; however, applicant has failed to amend the specification.

***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 19-21 and 23-35 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 19 and its dependent claims are rejected under 35 USC 112, first paragraph because the disclosure, as originally filed, does not provide support for the use of a double confocal scanning microscope having at least two light sources as recited in the newly-added claim 19, lines 2-3.

Art Unit: 2872

9. Claims 1, 3-6 and 8-18 and 22 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for use a light source in a microscope, does not reasonably provide enablement for use at least one light source in the microscope as recited in the amended claim 1. Applicant should note that the terms "at least one light source" (claim 1, line 2) can be two or three or four or five, etc... light sources and such a feature has never disclosed/have support in the disclosure, as originally filed.. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims.

***Claim Rejections - 35 USC § 102***

10. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

11. Claims 1, 8-12, 14, 16 and 18, as best as understood, are rejected under 35 U.S.C. 102(e) as being anticipated by Nagano et al (U.S. Patent No. 6,025,956, of record)

Nagano et al disclose a fluorescent microscope having an illuminating system and a detecting system, and teach the use of at least one optical element in each of the illuminating beam path and the detecting beam path for the purpose of influencing the optical characteristics of the illuminating beam and the detected beam. For instance, in columns 7-9 and figs. 4 and 6-7, they teach the use of a bandpass filter (26) and a slit (27) in the illuminating beam, and a modulator (31) in the detecting beam. It is also noted that the optical section (34-36) for viewing

the sample acts as a detecting system because the pending claims fail to provide any specific structural limitations for the detector. It is also noted that in the incident illuminating system used with the microscope, Nagano et al teach the use of a dichroic mirror (32), a filter (33) in the detection beam and a filter (42) in the illuminating beam.

With regard to the feature that the illuminating beam light path has an inherent illumination point spread function and the detecting beam light path has an inherent detection point spread function as recited in the newly-added materials to the claim, it is noted that any beam path still has an inherent point spread function, and the claims fail to recite any specific feature/limitations for the point spread function of either the illumination beam path or the detection beam path.

With regard to the feature that the specimen is located in a common plane defined by the two objectives, such a feature is clearly inherently shown in the art of Nagano et al because the sample (29) is disposed in a plane which is defined by both two lenses (30 and 28) so that the light beams focused by the lenses are on the same plane of the specimen.

12. Claims 1, 3-6, 8, 10, 13-17 and 22, as best as understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Krause (U.S. Patent No. 5,587,832, of record).

Krause discloses a scanning microscope having an illuminating system and a detecting system. In columns 2-5 and figs. 1-3, he teaches the use of a pattern aperture array (14) in the illuminating beam path and a pattern aperture array (32) in the detecting beam path. The light from the light source (18) is modified

by the array (14) and then reflected from a dichroic element (22) to incident on the specimen (20). The light from the specimen passes through the element (22) to incident onto a detecting system (26). The operations of the arrays (14 and 32) are under the controls of a computerized system. As a result, the illuminating light as well as the detected light are subjected to modifications based on the operations of the arrays. While Krause does not clearly state about the principal maxima and the secondary maxima; however, it is noted that the optical element as described in the specification, in particular, in pages 5 and 6, sections [0021] and [0023], are directed to a LCD and a deformable mirror without any specific limitations concerning the structures of the optical element. Thus, the use of a deformable mirror array and/or ferroelectric liquid crystal (see figs. 2-3 and column 4) disclosed by Krause meets the results as recited in present claims 2-6. With regard to the feature concerning the so-called "double confocal scanning microscope" as recited, it is noted that the claim just refers to the terms without any specific structural limitations. As such, the mentioned feature is not given a patentable weight.

With regard to the feature that the illuminating beam light path has an inherent illumination point spread function and the detecting beam light path has an inherent detection point spread function as recited in the newly-added materials to the claim, it is noted that any beam path still has an inherent point spread function, and the claims fail to recite any specific feature/limitations for the point spread function of either the illumination beam path or the detection beam path.

With regard to the feature that the specimen is located in a common plane defined by the two objectives, such a feature is clearly inherently shown in the art of Krause because the sample (20) is disposed in a plane which is defined by at least two microscope lenses (see figure 5) so that the light beams focused by the lenses are on the same plane of the specimen. Applicant should note that while the pending claim recites two microscope objectives; however, the claims have never recited that the two objectives are disposed separated from each other. The feature relating to the two objectives as recited in the pending claims can be understood as a microscope objective lens system having two lens elements. In this aspect then the use of two microscope lens elements in the objective provided by Krause meets the feature claimed.

13. Claims 1, 3-6, 8, 10-12, 14, 16-18 and ~~22~~, as best as understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Dixon (U.S. Patent No. 5,386,112, of record).

Dixon discloses a scanning microscope having an illuminating system and a detecting system. In column 10 and fig. 8, for instance, he teaches the use of an analyzer (802) in the detecting beam path, and a set of analyzers and a half-wave plate (714) in the illuminating beam paths. The light from the light source (202) is scanned by a scanning system and then modified by the analyzers and the half-wave plate and then focused on a specimen. The light from the specimen is guided to a detecting system. The operations of the analyzers and the half-wave plate will change the amplitude of the light intensity, the phase of



the light beams, etc... As a result, the illuminating light as well as the detected light are subjected to modifications based on the operations of the mentioned optical elements. While Dixon does not clearly state about the feature concerning the principal maxima and the secondary maxima; however, it is noted that the optical element as described in the specification, in particular, in pages 5 and 6, sections [0017] and [0020], are directed to an optical element in the form of a filter or a polarization without any specific limitations concerning the structures of the optical element. Thus, the use of a polarization disclosed by Dixon meets the results as recited in present claims 2-6.

With regard to the feature that the illuminating beam light path has an inherent illumination point spread function and the detecting beam light path has an inherent detection point spread function as recited in the newly-added materials to the claim, it is noted that any beam path still has an inherent point spread function, and the claims fail to recite any specific feature/limitations for the point spread function of either the illumination beam path or the detection beam path.

With regard to the feature that the specimen is located in a common plane defined by the two objectives, such a feature is clearly inherently shown in the art of Dixon because the sample (227) is disposed in a plane which is defined by both two objectives (226 and 712) so that the light beams focused by the lenses are on the same plane of the specimen.

Art Unit: 2872

14. Claims 1, 3-6, 8, 10-12, 14, 16-18 and 22, as best as understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Gustafsson et al (U.S. Patent No. 5,671,085, of record).

Gustafsson et al discloses a scanning microscope having an illuminating system and a detecting system. In column 19 and fig. 32, for instance, they teach the use of an optical system for varying the phase of illuminating light beam, and a filter in the detecting beam path. The use of polarization elements and dichroic elements are also suggested by Gustafsson et al as can be seen in columns 16-18. The operations of the polarization elements and the filters will change the amplitude of the light intensity, the phase of the light beams, etc... As a result, the illuminating light as well as the detected light are subjected to modifications based on the operations of the mentioned optical elements. While Gustafsson et al do not clearly state about the feature concerning the principal maxima and the secondary maxima; however, it is noted that the optical element as described in the specification, in particular, in pages 5 and 6, sections [0017] and [0020], are directed to an optical element in the form of a filter or a polarization without any specific limitations concerning the structures of the optical element. Thus, the use of a polarization disclosed by Gustafsson et al meets the results as recited in present claims 2-6.

With regard to the feature that the illuminating beam light path has an inherent illumination point spread function and the detecting beam light path has an inherent detection point spread function as recited in the newly-added materials

to the claim, it is noted that any beam path still has an inherent point spread function, and the claims fail to recite any specific feature/limitations for the point spread function of either the illumination beam path or the detection beam path. With regard to the feature that the specimen is located in a common plane defined by the two objectives, such a feature is clearly inherently shown in the art of Gustafsson et al because the sample is disposed in a plane which is defined by both two objectives supported by two revolvers so that the light beams focused by the objective lenses are on the same plane of the specimen.

### ***Response to Arguments***

15. Applicant's arguments filed on 10/10/2002 have been fully considered but they are not persuasive.

A) With regard to applicant's arguments relating to the rejection of claims under 35 USC 102(e) over the art of Nagano et al, the arguments have been fully considered but they are not persuasive. Applicant argued that the art of Nagano et al does not disclose two microscope objectives for focusing light onto a specimen disposed in a common specimen plane; and an optical component for modifying the point spread function of light. The Examiner respectfully disagrees with the applicant and respectfully invited the applicant to review the art of Nagano et al. applicant should note that the arrangements of the objective/condenser lens systems (28 and 30) for focusing light onto the specimen. Since the optical features of the lenses are able to make similar to each other (see figure 4) then it is expected that the distances between each lens

Art Unit: 2872

and the specimen are the same. With regard to the use of at least one optical element in each of the illuminating beam path and the detecting beam path for the purpose of influencing the optical characteristics of the illuminating beam and the detected beam, it is noted that Nagano et al, in columns 7-9 and figs. 4 and 6-7, teach the use of a bandpass filter (26) and a slit (27) in the illuminating beam, and a modulator (31) in the detecting beam.

B) With regard to the applicant's arguments relating to the rejection of the claims under 35 USC 102(b) over the art of Dixon, the arguments have been fully considered but they are not persuasive.

Applicant should note that in column 10 and fig. 8, for instance, Dixon teaches a scanning microscope having an illuminating system, a detecting system and two objectives disposed in an opposite manner with respect to a specimen. Dixon also teaches the use of an analyzer (802) in the detecting beam path, and a set of analyzers and a half-wave plate (714) in the illuminating beam paths. The light from the light source (202) is scanned by a scanning system and then modified by the analyzers and the half-wave plate and then focused on a specimen. The light from the specimen is guided to a detecting system. The operations of the analyzers and the half-wave plate will change the amplitude of the light intensity, the phase of the light beams, etc...

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the equal of illuminating light distance or path lengths of two light

paths) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

C) With regard to applicant's arguments relating to the rejection of the claims under 35 USC 102(b) over the art of Gustafsson et al. the arguments have been fully considered but they are not persuasive. Applicant is respectfully invited the art of Gustafsson et al, in particular, in column 19 and fig. 32. In other words, Gustafsson et al discloses a scanning microscope having an illuminating system and a detecting system. In column 19 and fig. 32, for instance, they teach the use of an optical system for varying the phase of illuminating light beam, and a filter in the detecting beam path. The use of polarization elements and dichroic elements are also suggested by Gustafsson et al as can be seen in columns 16-18. The operations of the polarization elements and the filters will change the amplitude of the light intensity, the phase of the light beams, etc... As a result, the illuminating light as well as the detected light are subjected to modifications based on the operations of the mentioned optical elements.

D) With regard to applicant's arguments relating to the rejection of the claims under 35 USC 102(b) over the art of Krause, the arguments have been fully considered but they are not persuasive. Applicant is respectfully invited to review the art of Krause, in particular, in columns 2-5 and figs. 1-3. In other words, Krause teaches the use of a pattern aperture array (14) in the illuminating beam

path and a pattern aperture array (32) in the detecting beam path. The light from the light source (18) is modified by the array (14) and then reflected from a dichroic element (22) to incident on the specimen (20). The light from the specimen passes through the element (22) to incident onto a detecting system (26). The operations of the arrays (14 and 32) are under the controls of a computerized system. As a result, the illuminating light as well as the detected light are subjected to modifications based on the operations of the arrays.

In regard to the feature that the specimen is located in a common plane defined by the two objectives, such a feature is clearly inherently shown in the art of Krause because the sample (20) is disposed in a plane which is defined by at least two microscope lenses (see figure 5) so that the light beams focused by the lenses are on the same plane of the specimen. Applicant should note that while the pending claim recites two microscope objectives; however, the claims have never recited that the two objectives are disposed separated from each other. The feature relating to the two objectives as recited in the pending claims can be understood as a microscope objective lens system having two lens elements. In this aspect then the use of two microscope lens elements in the objective provided by Krause meets the feature claimed.

### ***Conclusion***

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

Art Unit: 2872

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thong Q. Nguyen whose telephone number is (703) 308-4814. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cassandra Spyrou can be reached on (703) 308-1687. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0956.

Application/Control Number: 09/683,713  
Art Unit: 2872



Thong Q. Nguyen  
Primary Examiner  
Art Unit 2872

Page 15

\*\*\*

December 12, 2002